
CANCER FACTS

National Cancer Institute • National Institutes of Health

Questions and Answers About Ovarian Cancer

1. What is ovarian cancer?

Ovarian cancer is cancer that arises in the ovaries, a pair of female reproductive organs located in the pelvis. The ovaries have two functions: they produce eggs and female hormones (chemicals that control the way certain cells or organs function). Ovarian cancer occurs when cells in the ovary become abnormal and divide without control or order. Cancer cells can invade and destroy the tissue around them. They can also break away from the tumor and spread to form new tumors in other parts of the body.

2. Who is at risk?

It is estimated that in 1999, more than 25,000 women in the United States will be diagnosed with ovarian cancer and more than 14,000 will die from this disease. The exact causes of ovarian cancer are not known. However, studies show that the following factors may increase the chance of developing this disease:

- C **Family history.** First-degree relatives (mother, daughter, sister) of a woman who has had ovarian cancer are at increased risk of developing this type of cancer themselves. The risk is especially high if two or more of a woman's first-degree relatives have had the disease. A family history of breast or colon cancer is also associated with an increased risk of developing ovarian cancer.
- C **Age.** The likelihood of developing ovarian cancer increases as a woman gets older. Most ovarian cancers occur in women over the age of 50, with the highest risk for women over 60.
- C **Childbearing.** Women who have never had children are more likely to develop ovarian cancer than women who have had children. In fact, the more children a woman has had, the less likely she is to develop ovarian cancer.
- C **Personal history.** Women who have had breast or colon cancer may have a greater chance of developing ovarian cancer than women who have not had breast or colon cancer.

- C **Fertility drugs.** Fertility treatment with certain drugs that trigger ovulation is associated with a higher-than-average chance of developing ovarian cancer.
- C **Talc.** Some studies suggest that women who have used talc in the genital area for many years may be at an increased risk of developing ovarian cancer. However, further research is needed to understand this possible risk factor.

3. **Are there any tests to detect early ovarian cancer?**

The sooner ovarian cancer is found and treated, the better a woman's chance for recovery. But ovarian cancer is hard to detect early. Many times, women with ovarian cancer have no symptoms or just mild symptoms until the disease is in an advanced stage. Scientists are studying ways to detect ovarian cancer before symptoms develop.

A large-scale study, known as the Prostate, Lung, Colorectal, and Ovarian Screening Trial, or PLCO trial, seeks to determine if certain tests will reduce the number of deaths from these cancers. PLCO is currently evaluating the usefulness of three methods of detecting ovarian cancer. One is a blood test that measures the level of CA-125, a substance called a tumor marker, which is often found in higher-than-normal amounts in the blood of women with ovarian cancer. PLCO is also evaluating the effectiveness of a physical exam of the ovaries and a test called transvaginal ultrasound in detecting the disease early. Transvaginal ultrasound, also called TVP, is a procedure used to examine the vagina, uterus, fallopian tubes, and bladder. An instrument is inserted into the vagina, and sound waves bounce off organs inside the pelvic area. These sound waves create echoes, which a computer uses to create a picture called a sonogram.

4. **Does ovarian cancer cause any symptoms?**

Ovarian cancer often shows no obvious signs or symptoms until late in its development. Signs and symptoms of ovarian cancer may include:

- C General abdominal discomfort and/or pain (gas, indigestion, pressure, swelling, bloating, cramps)
- C Nausea, diarrhea, constipation, or frequent urination
- C Loss of appetite
- C Feeling of fullness even after a light meal
- C Weight gain or loss with no known reason
- C Abnormal bleeding from the vagina

These symptoms may be caused by ovarian cancer or by other, less serious conditions. It is important to check with a doctor about any of these symptoms.

5. How is ovarian cancer diagnosed?

To find the cause of symptoms, a doctor evaluates a woman's medical history, performs a physical exam, and orders diagnostic tests. Some exams and tests that may be useful are described below:

- C **Pelvic exam** includes feeling the uterus, vagina, ovaries, fallopian tubes, bladder, and rectum to find any abnormality in their shape or size. A Pap test (a common test used to detect cancer of the cervix) is often done along with the pelvic exam. Occasionally this test may find ovarian cancer, but it is not a reliable way to find or diagnose ovarian cancer.
- C **Ultrasound** is the use of high-frequency sound waves. These waves, which cannot be heard by humans, are aimed at the ovaries. The pattern of the echoes they produce creates a picture called a sonogram. Healthy tissues, fluid-filled cysts, and tumors look different on the picture.
- C **CA-125 assay** is a blood test used to measure CA-125 levels, a tumor marker that is often found in higher-than-normal amounts in the blood of women with ovarian cancer.
- C **Lower GI series**, or **barium enema**, is a series of x-rays of the colon and rectum. The pictures are taken after the patient is given an enema with a white, chalky solution containing barium. The barium outlines the colon and rectum on the x-ray, making tumors or other abnormal areas easier to see.
- C **CT (or CAT) scan** is a series of detailed pictures of areas inside the body created by a computer linked to an x-ray machine.
- C **Biopsy** is the removal of tissue for examination under a microscope. A pathologist studies the tissue to make a diagnosis. To obtain the tissue, the surgeon performs a laparotomy (an operation to open the abdomen). If cancer is suspected, the surgeon performs an oophorectomy (removal of the entire ovary). This is important because, if cancer is present, cutting through the outer layer of the ovary to remove just a sample of tissue could allow cancer cells to escape and cause the disease to spread.

If the diagnosis is ovarian cancer, the doctor will want to learn the stage (or extent) of disease. Staging is a careful attempt to find out whether the cancer has spread and, if so, to which parts of the body. Staging may involve surgery, x-rays and other imaging procedures, and lab tests. Knowing the stage of the disease helps the doctor plan treatment.

6. How is ovarian cancer treated?

Many different treatments and combinations of treatments are used to treat ovarian cancer. The treatment plan for an individual patient depends on a number of factors, including the stage of the cancer and her age and general health.

- C **Surgery** is the treatment for most women diagnosed with ovarian cancer. The ovaries, the cervix, the uterus, and the fallopian tubes are usually removed in an operation called a hysterectomy with bilateral salpingo-oophorectomy.

Staging is done during surgery, and generally involves removing lymph nodes (small organs located along the channels of the lymphatic system); samples of tissue from the diaphragm, the omentum (the thin tissue covering the stomach and large intestine), and other organs in the abdomen; and fluid from the abdomen. If the cancer has spread, the surgeon usually removes as much of the cancer as possible to reduce the amount of cancer that will have to be treated later with chemotherapy or radiation therapy.

- C **Chemotherapy** is the use of anticancer drugs to kill cancer cells throughout the body. Most drugs used to treat ovarian cancer are given by injection into a vein (intravenous or IV). Chemotherapy drugs may also be given directly into the abdomen (intraperitoneal or IP) by a catheter, a thin tube that remains in place for as long as treatment is needed.

After chemotherapy is completed, second-look surgery may be performed to directly examine the abdomen. The surgeon may remove fluid and tissue samples to see whether the anticancer drugs have successfully eliminated the cancer.

- C **Radiation therapy**, also called radiotherapy, involves the use of high-energy rays to kill cancer cells. Radiation therapy affects the cancer cells only in the treated area. The radiation may come from a machine (external radiation) or from a radioactive liquid put directly into the abdomen through a catheter (intraperitoneal radiation).

7. Are there clinical trials (research studies) for patients with ovarian cancer?

Yes, clinical trials (research studies) to evaluate new ways to treat cancer are an important treatment option for many women with ovarian cancer. In some studies, all patients receive the new treatment. In others, doctors compare different therapies by giving a promising new treatment to one group of patients and the usual (standard) therapy to another group.

Through research, doctors learn new, more effective ways to treat cancer. More information about treatment studies can be found in the NCI publication *Taking Part in Clinical Trials: What Cancer Patients Need To Know*. NCI's cancerTrials™ Web site at <http://cancertrials.nci.nih.gov> provides detailed information about ongoing studies for

ovarian cancer. Clinical trial information is also available from the Cancer Information Service (see below).

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Sources of National Cancer Institute Information

Cancer Information Service

Toll-free: 1-800-4-CANCER (1-800-422-6237)

TTY (for deaf and hard of hearing callers): 1-800-332-8615

NCI Online

Internet

Use <http://www.cancer.gov> to reach NCI's Web site.

CancerMail Service

To obtain a contents list, send e-mail to cancermail@icicc.nci.nih.gov with the word "help" in the body of the message.

CancerFax® fax on demand service

Dial 301-402-5874 and listen to recorded instructions.

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